10-13-2000

Oddi v. Ford Motor Co.

Filed October 13, 2000

UNITED STATES COURT OF APPEALS
FOR THE THIRD CIRCUIT

No. 99-3406

DAVID ODDI; ERIN ODDI, His Wife

v.

FORD MOTOR COMPANY; GRUMMAN
ALLIED INDUSTRIES INC.; GRUMMAN
OLSON BODIES, INC.; OLSON BODIES, INC.

v.

COMMONWEALTH OF PENNSYLVANIA,
DEPARTMENT OF TRANSPORTATION,

Third Party Defendant

DAVID ODDI,

Appellant

Appeal from the United States District Court
for the Western District of Pennsylvania
Civil Action No. 95-cv-01341
District Judge: Hon. Robert J. Cindrich

Argued: May 9, 2000

Before: GREENBERG and McKEE, Circuit Judges,
and GARTH, Senior Circuit Judge

(Opinion filed: October 13, 2000)

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OPINION OF THE COURT

McKEE, Circuit Judge.

David Oddi was catastrophically injured in a one-vehicle accident when the truck he was driving struck a guardrail and a bridge abutment. Thereafter, he filed two separate product liability actions in state court. He sued Ford Motor Company, which designed and manufactured the chassis of the truck, and he brought a separate action against Grumman Allied Industries, Inc. (then known as Olson Bodies, Inc), which designed and manufactured thefinished truck. Ford and Grumman removed the actions to the district court where they were consolidated.1 Ford and

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1. Jurisdiction in the district court was premised upon diversity of citizenship. 28 U. S. C. S 1332. Oddi is a citizen of Pennsylvania. Ford is a Delaware corporation and Grumman is a New York corporation.

Grumman eventually moved for summary judgment based upon their contention that Oddi could not establish a prima facie case because his proposed expert testimony failed to satisfy the requirements of Daubert v. Merrell Dow Pharmaceuticals, Inc., 509 U. S. 579 (1993). The district court agreed and granted summary judgment in favor of Ford and Grumman, and against Oddi. The district court subsequently denied Oddi's motion for reconsideration, and this appeal followed. For the reasons that follow, we will affirm.

I. FACTS AND PROCEDURAL HISTORY.

On June 21, 1993, Oddi was driving a bread truck owned and maintained by Continental Baking Company. He was proceeding northbound at exit 14 of Interstate 79 near Pittsburgh, Pennsylvania, at approximately 55 to 60 miles an hour when the truck struck a guardrail and bridge abutment. Oddi's legs were crushed so badly by the force of the accident that they both had to be amputated. Oddi's left arm was also permanently injured.

The truck was a 1976 special order Ford M-5000 Stripped Chassis that Continental had ordered through a Ford dealership for use as a bread delivery truck. When the truck left Ford's possession and control it was comprised only of basic component parts such as frame rails, axles, engine, drive train, wheels and a front bumper. Continental took delivery of the Stripped Chassis and delivered it to Grumman for the design and manufacture of the finished vehicle. Grumman designed and manufactured all necessary aspects of the vehicle pursuant to Continental's specifications. This included modifications to the occupant compartment ("cab") and floor boards. Continental had used the truck as a bread delivery truck from 1976 through 1993, and it had been driven for hundreds of thousands of miles in that capacity before this accident occurred.2

The suits that Oddi filed after his accident asserted

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2. It is impossible to determine exactly how many miles it had been driven because the maintenance records are missing, and the odometer had turned over an unknown number of times.

claims against Ford and Grumman under theories of strict liability, negligence, breach of warranty and failure to warn.3 Oddi claimed Ford's defective design of the front bumper of the bread truck allowed the underside of the truck to ride up or "ramp" onto the guardrail and strike the bridge abutment.4 He also claimed that after the truck ramped onto the guardrail, the left front wheel of the truck hooked over the rail preventing him from steering away from the bridge abutment. He alleged that defects in the cab (designed and manufactured by Grumman) had caused the flooring to bend upon impact with the bridge abutment and apply such force as to crush both his legs. He also alleged that the truck rolled over and down an adjacent embankment after it struck the bridge abutment.

Ford denied any design defects and also denied that the truck ramped the guardrail. According to Ford, the truck simply struck the guardrail and rolled over it. Similarly, Grumman denied that the flooring was deficient or that it caused any injury at all.5

Oddi retained two experts to support his contention that his injuries were caused by defects in the manufacture and design of the truck. John N. Noettl, an engineer, was retained to testify about the defective design, and Leon Kazarian, a bio-mechanist, was retained to testify about the process by which Oddi received his injuries.

After deposing both of Oddi's experts, Ford and Grumman moved for summary judgment. Ford argued that all of Oddi's claims should be dismissed because Oddi's proposed expert testimony could not survive the threshold inquiry required under Daubert v. Merrell Dow

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3. Oddi also asserted negligence claims against the Commonwealth of Pennsylvania, Department of Transportation ("PennDOT") based upon the design of the guardrails and the bridge abutment. However, the record does not disclose the status of that action.

4. Oddi also asserted steering defects against Ford. However, after discovery, he dismissed those claims.

5. Ford and Grumman also filed third-party complaints against PennDOT in the removed action in district court. However, they subsequently voluntarily dismissed that action. Consequently, PennDOT was no longer a party in the district court action and is not a party in this appeal.

Pharmaceuticals, Inc., 509 U. S. 579 (1993), and, therefore, Oddi could not establish a prima facie case. Grumman did not initially make a specific challenge under Daubert. Instead, Grumman initially argued only that Oddi's evidence was either inadmissible or failed to satisfy Oddi's burden of proof.

Oddi responded to the summary judgment motions by filing a brief in opposition, an affidavit of Noettl, and excerpts of Noettl's deposition testimony. Oddi did not request an evidentiary hearing or oral argument, nor did he submit anything else in response to Ford's Daubert challenge.

After reviewing Oddi's submissions in opposition to the summary judgment motions, Grumman filed a reply brief in which it argued that Oddi still could not meet his burden of showing that the truck was not crashworthy. Grumman also challenged Oddi's experts under Daubert. Oddi responded by filing a motion to strike Grumman's reply brief claiming that the district court had not granted leave to Grumman to file it. In the alternative, Oddi sought leave to submit opposing affidavits if needed.

On March 31, 1999, the district court entered a Memorandum Opinion in which it ruled that Oddi's experts did not meet Daubert's admissibility standards. Absent the testimony of those experts, Oddi could not establish a prima facie case of liability, and the district court therefore granted summary judgment in favor of Ford and Grumman.

Oddi filed a motion for reconsideration in which his major argument was that the district court should have held a hearing on the Daubert challenge before granting summary judgment. However, the district court disagreed and on September 2, 1999, denied his motion for reconsideration. Oddi then sent a letter to the district court enclosing a copy of our August 2, 1999 decision in Padillas v. Stork-Gamco, Inc., 186 F.3d 412 (3d Cir. 1999). Oddi argued that Padillas required that an evidentiary hearing be held so that he could meet the defendants' Daubert challenges. However, the district court disagreed and issued a supplemental Memorandum Opinion in which it held that Oddi was not entitled to an evidentiary hearing.

This appeal followed.

II. THEORIES OF LIABILITY.

Although Oddi based his suits upon several different theories of liability, he only appeals the district court's grant of summary judgment on his crashworthiness and negligent failure to test claims. We will begin our inquiry by discussing each of those theories.

A. Crashworthiness.

"The term crashworthiness means the protection that a motor vehicle affords its passenger against personal injury or death as a result of a motor vehicle accident." Kuptez v. Deere & Co., Inc., 644 A.2d 1213, 1218 (Pa. Super. 1994). The doctrine "imposes liability on the manufacturer not for causing the accident, but rather for failing to minimize the injuries or even increasing the severity of the injuries sustained in an accident brought about by a cause other than the alleged defect." Habecker v. Clark Equipment Co., 36 F.3d 278, 283 (3d Cir. 1994)("Habecker III"). "[T]he crashworthiness doctrine permits a plaintiff to recover for enhanced injuries, i. e., only for those injuries he can prove he would not have sustained if he had been riding in a crashworthy vehicle." Carrasquilla v. Mazda Motor Corp., 963 F. Supp. 455, 458 (M. D. Pa. 1997)(citations and internal quotations omitted). "[I]f enhanced injuries cannot be shown, then no liability exists as to the manufacturer." Id.

Crashworthiness is a subset of products liability law.6 Although the Pennsylvania Supreme Court has not yet adopted the crashworthiness doctrine for products liability cases,7 we have predicted that it would do so in an appropriate case. See Habecker v. Clark Equipment Co., 942

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6. "In a typical products liability action in Pennsylvania, a plaintiff must show: (1) the product was defective; (2) the defect existed while the product was in the control of the manufacturer; and (3) the defect was the proximate cause of the injuries." Habecker III, 36 F.3d at 284.

7. Because this is a diversity case, Pennsylvania products liability law applies. Padillas v. Stork-Gamco, Inc., 186 F.3d 412, 413 (3d Cir. 1999).

F.2d 210 (3d Cir. 1991)("Habecker II").8 To establish a cause of action on a theory of crashworthiness, a plaintiff must show: (1) the design9 of the product was defective; (2) an alternative, safer design that was practical existed; (3) what injuries, if any, the plaintiff would have received had the alternative design been used; and (4) the defective design caused or exacerbated specific injuries. 10 Barker v. Deere and Co., 60 F.3d 158, 161 n.3 (3d Cir. 1995)(citation omitted).

B. Negligent Failure to Test.

Oddi alleged that Ford and Grumman were negligent for "[f]ailing to do adequate, necessary and proper testing of the vehicle prior to the sale which would have revealed the dangerous condition of the product." Complaint, at P 4r. Oddi refers to this theory of recovery as the tort of "negligent failure to test." Oddi's Br. at 26. He claims that its elements are as set forth in 1836 Callowhill Street v. Johnson Controls, Inc., 819 F. Supp. 460 (E. D. Pa. 1993). Oddi argues that under 1836 Callowhill Street he can recover under this theory if he establishes that: (1) the manufacturer has a duty to test its product; (2) the manufacturer breached that duty, i. e., the manufacturer did not test; and (3) the breach or the failure to test was the proximate cause of the plaintiff 's injury. Oddi's Br. at 26.

In 1836 Callowhill, the court made several assumptions for purposes of ruling on a motion for summary judgment.

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8. The Pennsylvania Superior Court accepted the crashworthiness doctrine in 1994. Kupetz v. Deere & Co., Inc. , 644 A.2d 1213 (Pa. Super. 1994). The Pennsylvania Supreme Court has subsequently, referred to the crashworthiness doctrine, but has not yet officially adopted it. See Schroeder v. Commonwealth of Pennsylvania, Department of Transportation, 710 A.2d 23, 28 n.8 (Pa. 1998).

9. We have noted that "[t]he theory of products liability is applied to three types of defects: design, manufacturing and marketing (warnings). The crashworthiness doctrine implicates the overtures of design defects." Habecker III, 36 F.3d at 283 n.6.

10. It has been suggested that the third and fourth elements of the crashworthiness doctrine are corollaries. Huddell v. Levin, 537 F.2d 726, 738 (3d Cir. 1976).

The court assumed that defendant's product was defective, that the defect caused the alleged damage, and that the defendant had a duty to adequately test the defective product to discover the defect. Nevertheless, the court granted summary judgment to the defendant as to plaintiff 's negligence claim. The court concluded that plaintiff did not "offer[ ] sufficient evidence of a breach of that duty [to] create a genuine dispute of fact." Id. at 465. Consequently, although the court stated, that "[n]egligent failure to test is cognizable as a common law negligence theory," 819 F. Supp. at 464-65, that decision cannot fairly be said to support the proposition that a manufacturer has a general duty to test a product to determine if it is defective.

Therefore, even if 1836 Callowhill were precedential and correctly stated the law of Pennsylvania, we would still be compelled to conclude that Oddi has cited no authority that establishes the principle that a manufacturer has a general duty to test its product. We have found no authority to support Oddi's contention that Pennsylvania recognizes an independent tort for "negligent failure to test," and Oddi has offered none.

Rather, it appears that Oddi's "negligent failure to test" claim is, at bottom, nothing more than a routine products liability case based on negligence, and that the claimed negligence is the failure to test. Under Pennsylvania law, in order for an injured party to establish a cause of action against a manufacturer based upon the latter's breach of a duty, "the plaintiff must prove, not only that the product was defective and that the defect caused his[/her] injury, but in addition, [the plaintiff must prove] that in manufacturing or supplying the product the defendant failed to exercise due care." Dambacher v. Malis, 485 A.2d 408, 424 (Pa. Super. 1984). Thus, Oddi must first establish that the vehicle was defective.

Thus, whether we view Oddi's theory as crashworthiness or negligence arising from a failure to test, he must establish a defect in the design of the truck in order to recover, and he must then show that that defect caused his injuries. As noted above, he attempted to do this through the proffered expert testimony of John N. Noettl and Leon

Kazarian, but the district court refused to admit their expert testimony.

III. STANDARDS FOR ADMISSIBILITY OF EXPERT TESTIMONY.

Federal Rule of Evidence 702 states:

> If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise.

The Supreme Court amplified the operation and scope of Rule 702 in Daubert v. Merrell Dow Pharmaceuticals, Inc., supra. There, the Court held that scientific knowledge requires

> an inference or assertion . . . derived by the scientific method. Proposed testimony must be supported by appropriate validation -- i.e., "good grounds," based on what is known. In short, the requirement that an expert's testimony pertain to "scientific knowledge" establishes a standard of evidentiary reliability.

Id. at 590. Rule 702 thus "clearly contemplates some degree of regulation of the subjects about which an expert may testify." Id. at 589. Consequently, the Court established a "gatekeeping role for the [trial] judge." Id. at 597.

> [T]he trial judge must determine at the outset, pursuant to Rule 104(a),11 whether the expert is proposing to testify to (1) scientific knowledge that (2) will assist the trier of fact to understand or determine a fact in issue. This entails a preliminary assessment of whether the reasoning or methodology underlying the testimony is scientifically valid and of whether that

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11. Fed. R. Evid. 104(a) provides: "Preliminary questions concerning the qualification of a person to be a witness, the existence of a privilege, or the admissibility of evidence shall be determined by the court, subject to the provisions of subsection (b)[pertaining to conditional admissions].

> reasoning or methodology properly can be applied to the facts in issue.

Id. at 592-93. The proponent must satisfy this burden "by a preponderance of proof." Id. at 593 n.10.

Although "[m]any factors will bear on the inquiry," the Court has set out some "general observations," Id. at 593, that serve as guideposts in determining if proffered expert testimony is sufficiently relevant and reliable to be admissible.12 First, "a key question to be answered in determining whether a theory or technique is scientific knowledge that will assist the trier of fact will be whether it can be (and has been) tested." Id. Second, the court should consider "whether the theory or technique has been subjected to peer review and publication." Id. Publication, which is an element of peer review, "is not a sine qua non of admissibility: it does not equate with reliability." Id. It may, however, suggest "good science." Id. "The fact of publication (or lack thereof) in a peer reviewed journal will be a relevant, though not dispositive, consideration in assessing the scientific validity of a particular technique or methodology upon which an opinion is premised." Id. at 594. Third, "in the case of a particular scientific technique, the court ordinarily should consider the known or potential rate of error, and the existence and maintenance of standards controlling the technique's operation." Id. Fourth, and finally, "general acceptance" can have bearing on the inquiry. Id. "Widespread acceptance can be an important factor in ruling particular evidence admissible, and a known technique which has been able to attract only minimal support with the community may properly be viewed with skepticism." Id. However,"general acceptance" is "not a necessary precondition to the admissibility of scientific evidence." Id. at 597. The Court also emphasized that the "inquiry envisioned by Rule 702 is . . . a flexible

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12. Obviously, evidence must first be relevant to be admissible. Relevant evidence is evidence that helps "the trier of fact to understand the evidence or to determine a fact in issue." Id. at 591. This consideration of relevance has been described as one of "fit" or "helpfulness." It requires "a valid scientific connection to the pertinent inquiry as a precondition to admissibility." Daubert, at 591-92.

one," and noted that the "focus . . . must be solely on principles and methodology, not on the conclusions they generate." Id. at 595.

Shortly after the Supreme Court decided Daubert , we applied its teachings in In re Paoli Railroad Yard PCB Litigation, 35 F.3d 717 (3d Cir. 1994)("Paoli II"). There, we concluded that Rule 702 has two major requirements; "qualifications" and "reliability," and noted that an expert's "qualifications" are interpreted liberally. In discussing "Reliability" we listed the factors enunciated in Daubert but noted the continued vitality of our prior analysis in United States v. Downing, 753 F.2d 1224 (3d Cir. 1985). We held that a "district court should take into account all of the factors listed by either Daubert or Downing as well as any others that are relevant," Paoli II, at 742, in conducting an inquiry into the reliability of proposed expert testimony. The factors that are relevant under Daubert and Downing include: "(1) whether a method consists of a testable hypothesis; (2) whether the method has been subjected to peer review; (3) the known or potential rate of error; (4) the existence and maintenance of standards controlling the technique's operation; (5) whether the method is generally accepted; (6) the relationship of the technique to methods which have been established to be reliable; (7) the qualifications of the expert witness testifying based on the methodology; and (8) the non-judicial uses to which the method has been put." Paoli II, at 742 n. 8.

In Paoli II, we also stated that the expert's testimony must "fit," in that it must assist the trier of fact. Id. at 743. Admissibility thus depends in part upon "the proffered connection between the scientific research or test result to be presented and particular disputed factual issues in the case." Id. This standard is not intended to be a high one, nor is it to be applied in a manner that requires the plaintiffs "to prove their case twice -- they do not have to demonstrate to the judge by a preponderance of the evidence that the assessments of their experts are correct, they only have to demonstrate by a preponderance of evidence that their opinions are reliable." Id. at 744. This is a very important distinction. The test of admissibility is not whether a particular scientific opinion has the best

foundation or whether it is demonstrably correct. Rather, the test is whether the "particular opinion is based on valid reasoning and reliable methodology." Kannankeril v. Terminix International Inc., 128 F.3d 802, 806 (3d Cir. 1997). "The analysis of the conclusions themselves is for the trier of fact when the expert is subjected to cross-examination." Id.

Nonetheless, "conclusions and methodology are not entirely distinct from one another." General Electric Co. v. Joiner, 522 U. S. 136, 146 (1997). A court "must examine the expert's conclusions in order to determine whether they could reliably flow from the facts known to the expert and the methodology used." Heller v. Shaw Industries, Inc., 167 F.3d 146, 153 (3d Cir. 1999). "A court may conclude that there is simply too great a gap between the data and the opinion proffered." Joiner, at 146; see also In re TMI Litigation, 193 F.3d 613, 682-683 (3d Cir. 1999), opinion amended by 199 F.3d 158 (3d Cir.), cert. denied sub nom. General Public Utilities Corp. v. Abrams, ___ U. S. ___, 120 S. Ct. 2238 (2000) and Dolan v. General Public Utilities Corp., 120 S. Ct. 2238 (2000).

Although Daubert was decided in the context of scientific knowledge (whether evidence established a connection between the defendant's drug and birth defects), Daubert has since been extended to the kind of "technical or other specialized knowledge," at issue here. See Kumho Tire Co., Ltd. v. Carmichael, 526 U. S. 137, 141 (1999) ("We conclude that Daubert's general holding--setting forth the trial judge's general `gatekeeping' obligation--applies not only to testimony based on `scientific' knowledge, but also to testimony based on `technical' and `other specialized' knowledge."). The expert in Kumho Tire was an engineer and the Court there framed the issue before it as"how Daubert applies to the testimony of engineers and other experts who are not scientists." Id. at 141.

We examine the specific testimony that was excluded here against this background. "We afford a district court's application and interpretation of Rule 702 plenary review, Paoli II at 749, but we review the court's decision to admit or reject testimony under an abuse of discretion standard. Joiner, at 143. An abuse of discretion arises when the

district court's decision "rests upon a clearly erroneous finding of fact, an errant conclusion of law or an improper application of law to fact." Hanover Potato Products, Inc. v. Shalala, 989 F.2d 123, 127 (3d Cir. 1993). An abuse of discretion can also occur "when no reasonable person would adopt the district court's view." Id. We will not interfere with the district court's exercise of discretion "unless there is a definite and firm conviction that the court below committed a clear error of judgment in the conclusion it reached upon a weighing of the relevant factors." Id.

IV. THE CHALLENGED EXPERT TESTIMONY.

A. John N. Noettl.

Noettl, the accident reconstruction/design engineer, was to testify that the truck was defectively designed. 13 Noettl's proffered testimony is contained in a preliminary report dated June 16, 1997; an amended report dated December 4,1997; an affidavit dated September 23, 1998; and two depositions.

In his preliminary report, Noettl opined that the truck Oddi was driving

> rode up on the guard rail because of the failure of the left side of the front bumper. . . . Had the bumper not significantly deformed back and inward the vehicle would have been deflected by the guard rail.
>
> It is also my opinion that the floor board allowed intrusion by the guard rail and possibly the concrete barrier into the occupant compartment in the area near the brake pedal and where the driver's feet and legs would be located. This intrusion was a direct cause of the injuries to Mr. Oddi.
>
> Had the bumper and the floor board been properly structurally designed the vehicle would not have gone over the guard rail and the occupant compartment

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13. Ford and Grumman do not challenge his qualifications as an expert.

would not have been intruded by the guard rail and concrete barrier.

App. at 104-105.

After he reviewed the deposition of defense expert Donald Edelen, Noettl submitted an amended report, dated December 4, 1997. In it he stated:

> It is my opinion that [Ford] should have warned [Grumman] of the fact that the front bumper on their chassis is for decorative trim only and will not offer protection to the body and occupant in a collision. As a result of the design of the chassis and bumper, the front wheels of the vehicle become exposed in foreseeable accident situations. Ford should have specifically warned that the bumper was extremely weak due to the fact that it had no backing plate or brackets for reinforcement and because it had holes in the bumper placed immediately adjacent to the outside where the bumper mounted to the chassis.
>
> * * *
>
> Neither Ford nor Grumman conducted any testing that involved the vehicle impacting with guardrails. Neither Ford nor Grumman incorporated any design(s) into the chassis or body of the vehicle that would prevent or reduce the likelihood of the vehicle going over a guardrail in the event of an impact with a guardrail. Due to the vehicle's height, weight, and design the vehicle as a propensity to ramp up onto the guardrail in foreseeable collision situations.14 . . . This design

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14. This sentence could be read as advancing a new theory of design defect -- a "propensity to ramp" theory - because of the height, weight and design of the truck. That is, it could be taken as a theory separate and apart from Noettl's defective front bumper andfloor board theories. However, during his second deposition, Noettl clearly stated that he was not advancing any such separate theory. He testified:

> Q: Alright. "Has a propensity to ramp." When you say that, you are just telling me that this is a bigger truck. And as a bigger truck, you believe that it has more of a propensity to ramp than smaller vehicles?

> defect caused or contributed to the cause of the accident and to Mr. Oddi's injuries.

App. at 100-01.

In response to summary judgment motions, in which Ford and Grumman noted certain deficiencies in Noettl's submissions, Noettl prepared an affidavit which Oddi's counsel attached to Oddi's response to the summary judgment motions. That affidavit is dated September 23, 1998, and reads, in relevant part:

> 1. Given the basic design of this vehicle, the following is a description of alternative designs that in my opinion, would have (1) prevented the Oddi vehicle from ramping the guard rail and (2) prevented the intrusion which occurred of structural components into the occupant compartment.
>
> A. A reinforced bumper. The bumper on the subject vehicle had a measured 3.5 X 6.5 inches holes at critical stress points next to the frame rails to which the bumper is attached. The holes were designed and manufactured by the bumper manufacturer. The bumper should have been reinforced at these points by eliminating the holes and/or welding inch to inch steel reinforcement wedges between the frame rails and the upper and lower edges of the back side of the bumper.
>
> B. Steel brackets should have been welded to the . . . back side of the upper and lower edges of the back of the bumper.

> A: That is correct.
>
> Q: That is all there is to it?
>
> A: That is correct.
>
> Q: And is that a defect?
>
> A: No. That is not in and of itself a defect. The defects are the things we discussed. [i.e., the bumper and floor boards, discussed in a prior deposition].

Supp. App. at 144a (emphasis added).

C. The bending and tensile properties and or metal thickness of the bumper should have been increased in addition to A or B as described above.

D. Various bumper configurations such as tubular or cylinder designs should have been manufactured and tested in addition to A, B, and C above. These bumper configurations are stronger than flat bumpers with similar metal characteristics.

E. The occupant compartment should be reinforced by increasing the bending and tensile properties and metal thickness (by .125 inch increments) in the area of the floorboard and fire wall and\or by welding or forming ribbing to the metal in this area. Safety factors of fifty or hundred percent are common in products.

2. I have observed bracket and wedge bumper reinforcements on similar vehicles. As to metal thickness -- the steering components on the subject vehicle were protected by a measured .35 inch (approximately) thick steel enclosure while the bumper on this vehicle was designed to be .208 inch thick-- a difference of approximately .142 inch.

3. Guard rails of this type are common in road way design and vehicle encounters of the type that happened with the Oddi vehicle should be expected by manufacturers.

4. The design changes I have described were capable of being incorporated into the design and manufacture of this truck in 1976 using basic engineering design and manufacturing techniques.

5. The design changes I have described would not interfere with the function or intended use of the truck.

6. In my opinion the above design changes would have greatly increased bumper strength and occupant compartment protection with very little total incremental vehicle manufacturing cost.

7. It is my opinion that if the design changes described above were incorporated into the manufacturing process of the Oddi vehicle it would not

> have ramped on to the guard rail and would not have experiences sudden deceleration from striking the bridge abutment. This would have prevented the intrusions into the occupant compartment and the significant injury which Mr. Oddi sustained.

App. at 123-24.

In one of his depositions, Noettl testified that he based the opinions contained in his June 16, 1997 preliminary report in part on a review of accident reports, photographs, witnesses' statements, Oddi's medical records, and Oddi's deposition testimony; and in part on his own [Noettl's] "experience," "academic training," and"research that [he does] almost on a continuous basis, reviewing technical literature." App. at 138-139. However, Noettl was unable to identify any particular literature that he relied upon to form any of the opinions contained in his preliminary report. Id. Noettl testified that he did view films of crash tests in forming his opinions, Id. and he insisted that the alternative designs he suggested could be found in"any machine design book." Id. at 48-49. Noettl did list a number of accepted authorities and textbooks in a document Oddi's counsel refers to as an "offer of proof." Id. at 201.

Ford and Grumman point to specific portions of Noettl's depositions which they claim plainly demonstrate that Noettl's proffered expert testimony does not meet Daubert standards. Noettl opined that the front bumper was defective because it "bent back" when it struck the guardrail. He explained this was a defect because"it was designed with a large lever arm on the vehicle, out from the frame rail. It had holes in it for towing, which, in my opinion, would greatly weaken the structure, especially with that large lever arm on it which would allow it to be bent back." App. at 45. Noettl claimed that the bumper should have been designed "with either bracketry that would go from the frame rail out to the center part of that part of the bumper, or what [he referred to] as a backing wedge." Id. at 47. According to Noettl, the "backing wedge""would be like a V[ ]." Id.

However, when Noettl was asked to elaborate upon his belief that the bumper was defectively designed because it

bent backward upon striking the guardrail the following exchange occurred:

> Q: Now, have you determined what force was inflicted on the guardrail at the time of initial impact with the truck?
>
> A: No, I haven't. No.
>
> Q: Have you determined what force the truck inflicted on the bridge abutment and the rail on top of the bridge abutment when it made contact with that?
>
> A: No, the reason for answering both those questions, you would have a range of variables, also, but guardrails are designed to absorb energy and deflect vehicles. You would have to make an awful lot of assumptions.
>
> Q: Have you determined or measured the strength or rigidity of the guardrail?
>
> A: No.
>
> Q: You haven't ascertained how much force it could hold, is that correct?
>
> A: That's correct.

App. at 43-44. Later in the deposition, Noettl testified as follows:

> Q: Do you know how much force it took to bend that bumper to the point where it's bent?
>
> A: No, I don't.
>
> Q: Do you know how much force that bumper was capable of sustaining without bending? Have you determined that?
>
> A: I haven't determined that, right.

Id. at 46-47.

When Noettl was questioned about his proposed designs for the bumper, and design changes that would have been necessary to remedy the suggested defect, he offered several possibilities, but he conceded that he had not attempted to test or substantiate the modifications he was suggesting.

Q: What type of metal should the wedge be constructed from?

A: It could be the same as the bumper, if you wanted to, but you just turn it on end. You could have many, many choices on that.

Q: What if you used a brace? What type of metal should that brace be constructed from?

A: Again, you could use the same as the bumper. Again you would have a lot of choices on that. The bracketry would probably not be as strong as the wedge. Probably not. Test it and maybe you would achieve a strength that would far exceed anything you could expect.

Q: What would be the tensile strength or the gauge of the metal have to be on both of those options?

A: The way you go through is look up in books and you say, "Here. We got some metal here and let's try this." Certain gauge, certain strength, something that is readily available. It's not a big thing, is what I'm trying to say. You certainly would not cut holes in it right at one of the most critical points of where you major bending force is going to occur, which is at your railing.

Q: So this would be something relatively simple to look up in a book, and you could determine from the computations in some engineering book what you should be using. What would the name of the book be?

A: Any machine design book.

Q: Is that a particular book or is that a type of a book, machine design book?

A: That's a type of book.

Q: Could you give me an authority?

A: There are machine design books that give you all types of metal gauges. If you go through the design process for any of these things on a bumper, frame rails, exactly what they do -- they don't sit down. They don't do finite element analysis. They look up in books

what metal thickness, what's our yield strength, what's our tensile properties of this metal, bang, bang, bang. We're going to use this.

Q: Have you done that?

A: No. I haven't done that, no.

Q: So you don't know what the thickness would have to be, what the metal gauge, what the tensile strength --

A: Right.

Q: -- what type of material you would need to use; is that correct?

A: I told you I would use -- probably start with the same material that you have in the bumper. Take a piece of metal, turn it on its edge, put it in back of it, weld it on there for a test, see what strength you do gain out of this as far as impact, as far as bending moments and as far as shearing. You sure hope it won't shear off. You would do that. You would say,"I want it a little bit stronger." The easiest way, by far, is to thicken the metal. That's all you have to do. Get a lower gauge metal and put that on there and try it again.

Q: How thick would the metal have to have been to have not deformed in this impact?

A: I would say, in my opinion, half inch to an inch and a half range would be more than adequate to withstand the force on edge. That's the thickness, not the width.

Q: What would the width be?

A: I don't know. Three inches or so, four inches.

B. Leon Kazarian.

Kazarian, the biomechanical engineering consultant, was retained to explain how Oddi received his injuries. Kazarian authored a preliminary report, dated June 18, 1997, in which he opined: "On impact, the end of the bridge

pierced and penetrated the driver's occupant compartment impaling, cutting and crushing Mr. Oddi's extremities." The report noted that Oddi "was found outside the vehicle on the grassy slope next to the bridge." App. at 113. Though Oddi had been thrown from the truck, Kazarian concluded that Oddi had "sustained his primary injuries at the time he was in the driver's seated position," and that his injuries occurred "as a result of the bridge piercing, penetrating and crushing his extremities while he was in the driver's compartment." Id.

The following exchange occurred during Kazarian's deposition:

> Q: Have you considered what would have happened to Mr. Oddi in the event that there was no compromise to the floor of the vehicle and he still had the same accident? Are you able to tell us what would have happened to him physically?
>
> A: No, not as I sit here.
>
> Q: It could have been worse, it could have been better?
>
> A: I don't know.
>
> **********
>
> Q: And you hold no opinion on whether or not the vehicle mounted the guardrail, correct?
>
> A: That's correct.
>
> Q: Given that, have you considered what injuries, if any, Mr. Oddi would have sustained if the vehicle didn't mount the guardrail or ramp the guardrail?
>
> A: No.
>
> Q: So I take it that since you haven't considered that aspect, that you hold no opinions as to what injuries, if any, Mr. Oddi would have sustained had the vehicle not mounted or ramped the guard rail.
>
> A: Yes. As I sit here, I haven't thought about that.

Grumman's Br. at 32. Therefore, although Kazarian testified about how Oddi received his injuries, he was

unable to offer an opinion on the key aspect of Oddi's crashworthiness claim, i.e., whether Oddi's injuries were exacerbated by the design of the bread truck.

V. DISCUSSION.

Oddi argues that the district court erred in denying his motion for an in limine hearing on the Daubert challenge, and in granting summary judgment. We will address each argument separately.

A. Necessity for an in limine Hearing under Daubert.

Oddi bases his contention that a hearing was required upon Kumho Tire (decided just one week before the district court granted summary judgment here), and our holding in Padillas.15 We decided Padillas one month after the district court granted summary judgment.

Oddi submits that his case had been pending for four years before the Supreme Court decided Kumho Tire, and that Kumho Tire was not decided until after each of the following occurred in his case: (1) he filed his experts' reports; (2) his experts had been deposed; (3) defendants had filed their summary judgment motions; and (4) he had filed his papers in opposition to the summary judgment motions. Oddi's Br. at 15. Moreover, he claims that from the time he started his lawsuit until Kumho Tire was decided, the law did not assess nonscientific expert testimony under Daubert. Id. Nonetheless, the district court expressly subjected Noettl's testimony to Daubert scrutiny under Kumho Tire. See 3.31.99 Dist. Ct. Op. at 3, 7.

Thus, though not clearly articulated, Oddi is arguing that Kumho Tire worked a substantial change in the law and that the district court blind-sided him by subjecting his experts' testimony to a Daubert analysis. He contends that the district court's failure to hold an evidentiary hearing "precluded [him] from ever having the opportunity to present [his] expert testimony in accordance with the Kumho decision." Oddi's Br. at 15.

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15. Although he now makes this argument to us, he never asked the district court to conduct such a hearing.

Oddi's claim that the scope of Daubert was unsettled until Kumho Tire is not without force. See In re Unisys Savings Plan Litigation, 173 F.3d 145, 162 n.2 (3d Cir. 1999) (Becker, J., dissenting). Prior to Kumho Tire, there was substantial uncertainty about whether Daubert applied to nonscientific expert testimony. Contrast Surace v. Caterpillar, Inc., 111 F.3d 1039, 1055-56 (3d Cir. 1997); United States v. Valasquez, 64 F.3d 844, 847-50 (3d Cir. 1995); and Habecker III, at 289-90 (3d Cir. 1994), with Lauria v. National Railroad Passenger Corp., 145 F.3d 593, 599 n.7 (3d Cir. 1998).16 In Lauria we not only concluded that Daubert scrutiny did not apply to the proffered testimony of an engineer, but also that a nonscientific expert's testimony was admissible under Rule 702 based upon the expert's experience and knowledge. Id. at 599.

Nevertheless, we do not think that Oddi's reliance on Kumho Tire establishes that the district court erred in granting summary judgment here without an in limine hearing. Oddi was surely alerted to this problem when Ford raised a Daubert challenge in its summary judgment motion. In his brief in opposition to the defendants' summary judgment motions, Oddi specifically discussed Daubert, and argued that his experts' testimony satisfied Daubert. App. at 70-94. Despite the uncertain scope of Daubert, he never argued that Daubert did not apply to nonscientific expert testimony. Moreover, Oddi now reads far too much into our decision in Padillas.

It is not clear whether Oddi is arguing that Padillas always requires a hearing or that the procedural posture of his case is so like Padillas that the district court abused its discretion by not holding an in limine hearing. In Padillas, we focused upon the process by which the district court there determined that proffered expert testimony was inadmissible under Daubert. 186 F.3d at 417 ("We do not reach the question whether the district court abused its discretion in holding the [expert's] Report inadmissible under Rule 702. Our concern is with the process by which the court arrived at its ruling.").

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16. In Lauria we specifically noted that the Circuit Courts of Appeals were split over whether Daubert applied to nonscientific expert testimony. Id. at 599 n.7.

Padillas had been injured while hosing down a chicken cutting machine manufactured by Stork-Gamco. The cutting machine had an exposed cutting blade. He sued Stork-Gamco alleging strict products liability, negligence, breach of warranty and failure to warn. To establish liability, Padillas retained an engineering expert (Lambert) who opined in a written report that Stork-Gamco's failure to provide a guard that would prevent the snagging of the hose during wash-down and its failure to protect workers from the cutting blade resulted in a defective machine that caused his injury. Id. at 416.

Stork-Gamco filed a motion for summary judgment, arguing that Lambert's report did not meet the Daubert standards for admissibility. The district court agreed, excluded the report, and then granted summary judgment to Stork-Gamco. In reversing and remanding for an in limine hearing on Lambert's proffered testimony we criticized the process used by the district court. We noted at the outset that we have "long stressed the importance of in limine hearings under Rule 104(a) in making the reliability determination under Rule 702 and Daubert." Id. at 417 (internal quotations and citations omitted). We also reiterated the importance of an in limine hearing in ruling upon Daubert challenges even in the absence of a request for such a hearing. We stated that the district court has an "independent responsibility for the proper management of complex litigation" and emphasized that the plaintiff "need[s] an opportunity to be heard" on the critical issues of scientific reliability and validity. Id. The opportunity to be heard is important because it allows a plaintiff"a chance to have his or her expert demonstrate and explain the`good grounds' upon which the expert evidence rests." Id. at 418.

However, our analysis in Padillas cannot be divorced from the record that was before us. In commenting upon the district court's Daubert analysis of Lambert's report, we noted that it "does not establish that Lambert may not have `good grounds' for his opinions, but rather, that they are insufficiently explained and the reasons and foundations for them inadequately and perhaps confusingly explicated." Id. Lambert's report was quite conclusory and did not adequately explain the basis for his opinion, or the

methodology employed in reaching his conclusions. It was in that context that we held that if the district court "was concerned with the factual dimensions of [Lambert's] evidence . . . it should have had an in limine hearing to assess the admissibility of the report giving the plaintiff an opportunity to respond to the court's concerns." Id. (citation and internal quotations omitted). We stated, "when the ruling on admissibility turns on factual issues, . .., at least in the summary judgment context, failure to hold[an in limine] hearing may be an abuse of discretion." Id. (emphasis added).

Oddi attempts to equate the district court's rejection of Noettl's testimony here with the rejection of Lambert's testimony in Padillas. He submits that the district court found the basis of Noettl's conclusions "confusing." Oddi's Br. at 13. Consequently, he argues, the district court should have conducted an evidentiary hearing as we ordered in Padillas. Id.

Initially, we suspect that Oddi is being disingenuous in stating that the district court found that the basis of Noettl's conclusions was "confusing." The district court's reference to "confusion" had nothing to do with its decision to exclude Noettl's testimony. Rather, the "confusion" stemmed from a statement Noettl made in his December 4, 1997 amended report. He there referred to an alleged defect based upon the height, weight and design of the truck. He said those factors created a propensity to ramp. In his motion for reconsideration, Oddi claimed that he was entitled to reconsideration because the district court "disregarded his defect claim regarding the vehicle's `propensity to ramp' " because of the size of the vehicle. 9/2/99 Dist. Ct. Op. at 9-10. The district court's "confusion" was nothing more than a reference to the fact that neither the court nor the defendants could have interpreted Noettl's testimony about the truck's"propensity to ramp" as advancing an additional design defect apart from the defective bumper and flooring. To alleviate its "confusion," the district court reviewed Noettl's deposition testimony on that issue and quite correctly concluded that Noettl was not raising an alternative or additional design defect theory. 9/2/99 Op. at 13. See n.15, supra. Thus, the

district court did not disregard any of Noettl's theories and was not confused about the basis of Noettl's opinions.

More to the point however, Oddi's attempt to equate his circumstances with those in Padillas ignores the record here. As noted above, the record in Padillas was scant, and the district court therefore had no way of determining how Lambert had arrived at his conclusions about the chicken cutting machine. Accordingly, we held that the court had an independent obligation to reach a decision upon a record that had been adequately developed to allow for a meaningful evidentiary determination. We based that holding upon two separate considerations. "First,. . . the court has an independent responsibility for the proper management of complex litigation. Second, because plaintiff could not have known in advance the direction the district court's opinion might take and thus needed an opportunity to be heard on the critical issues before having his[/her] case dismissed." Id. at 417 (citations omitted).

Here, however, the evidentiary record pertaining to Oddi's expert was far from scant. As noted, it consisted of: (1) a preliminary report; (2) an amended report, prepared after Noettl reviewed the deposition testimony of a defense expert; (3) an affidavit specifically prepared to meet the defendants' Daubert challenge contained in their summary judgment motions; and (4) Noettl's two depositions. The district court therefore apparently saw no need to conduct a hearing before ruling on the Daubert challenges. This is consistent with Padillas and perfectly appropriate under Kumho Tire.

In Kumho Tire the expert's proffered testimony was taken from deposition testimony. 526 U. S. at 142 ("The plaintiffs rested their case in significant part upon deposition testimony provided by an expert in tire failure analysis, . . . , who intended to testify in support of their conclusion."). In the district court, the defendants requested an in limine hearing to challenge the plaintiff 's expert's proffered testimony. However, the district court refused that request, finding that two depositions submitted to it (one from the case before it and one from an unrelated case involving similar issues) were sufficient to allow an inquiry under Daubert. See Carmichael v. Sanyang

Tires, Inc., 923 F. Supp. 1514, 1518 (S. C. Ala. 1996). In approving the process the district court used to conduct its Daubert inquiry the Court wrote:

> The trial court must have the same kind of latitude in deciding how to test an expert's reliability, and to decide whether or when special briefing or other proceedings are needed to investigate reliability, as it enjoys when it decides whether or not that expert's relevant testimony is reliable. Our opinion in Joiner makes clear that a court of appeals is to apply an abuse-of-discretion standard when it reviews a trial court's decision to admit or exclude expert testimony. That standard applies as much to the trial court's decision about how to determine reliability as to its ultimate conclusions.

526 U. S. at 152 (citations and internal quotations omitted)(emphasis added).

The same situation obtains here. Although Oddi strenuously claims that he was entitled to an in limine hearing, he does not even begin to suggest how such a hearing would have advanced his position, and we can not begin to imagine that it would have. He does not claim that he has any new or additional information to present, and he does not claim that the factual record before the district court was somehow incomplete insofar as Noettl's testimony is concerned.17 Rather, he merely insists that he is entitled to a hearing under Padillas. However, "Padillas certainly does not establish that a District Court must provide a plaintiff with an open-ended and never-ending opportunity to meet a Daubert challenge until plaintiff `gets it right.' " In re TMI Litigation, 199 F.3d at 159. Yet, that is where Oddi's argument would take us.

Moreover, Oddi's reliance upon a denial of an in limine hearing also reflects a basic misperception about the nature of the hearing the court might have conducted even if it had afforded Oddi such a hearing. In Downing, we

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17. We do not suggest that the district court would have abused its discretion in denying an in limine hearing on this record even if Oddi had made these claims.

reiterated that trial courts retain significant discretion to determine in each instance "the procedure [it] should follow in making preliminary determinations regarding admissibility of evidence." 753 F.2d at 1241. We said that "we will not prescribe any mandatory procedures that district courts must follow in every case involving proffers of scientific evidence," and then noted "[a] few general observations . . ." as to how the preliminary evidentiary issues might be decided under Rule 702. We stated:

> It would appear that the most efficient procedure that the district court can use in making the reliability determination is an in limine hearing. Such a hearing need not unduly burden the trial courts; in many cases, it will be only a brief foundational hearing either before trial or at trial but out of the hearing of the jury. In the course of the in limine proceeding, the trial court may consider, inter alia, offers of proof, affidavits, stipulations, or learned treatises, in addition to testimonial or other documentary evidence (and, of course, legal argument).

Id. Here, the district court already had before it the depositions and affidavits of the plaintiff 's experts. Nothing more was required.

This conclusion is not inconsistent with our recent holding in Elcock v. Kmart Corp., __ F.3d __, 2000 WL 1486489 (3d Cir. Oct. 10, 2000). There, we reversed an award of damages and remanded for an in limine hearing as to the admissibility of the testimony of plaintiff 's economic loss expert. The witness in question, Dr. Chester Copemann, testified as an expert in vocational rehabilitation, and his testimony "substantially informed the large award for loss of future earnings and earning capacity." Id. at * 1. We reversed based upon our conclusion that "there should have been a Daubert hearing prior to the receipt of Copemann's testimony. . . ." Id. The defendant there had "repeatedly requested that the District Court conduct a Daubert hearing regarding Copemann's methods as a vocational rehabilitationist." Id. at *7. The case was litigated before the Supreme Court's holding in Kumho Tire, and the district court did not view the admissibility of the testimony of plaintiff 's nonscientific

expert as a Daubert issue. Id. However, Elcock, like Padillas, is a situation where the "gatekeeper" could not determine what methodology the expert used, and the reliability of the expert's conclusion could therefore not be established. In Elcock, we stated:

> [A] review of Copemann's vocational rehabilitation testimony demonstrates the significant reliability questions raised by his methodology and compels the conclusion that a Daubert hearing would have permitted a fuller assessment of Copemann's analytical processes and thus was a necessary predicate for a proper determination as to the reliability of Copemann's methods.

Id. at *8. In other words, a hearing was necessary to determine how the expert reached his opinion. Id . at *9 ("An expert's opinion is reliable if it is based on the methods and procedures of science rather than on subjective belief or unsupported speculation; the expert must have good grounds for his or her belief.")(citations and internal quotations omitted). However, "because Copemann never explained his method in rigorous detail, it [was] nearly impossible for [the defendant's] experts to repeat Copemann's apparently subjective methods. . . " Id. at *11.18 However, here, Noettl did explain how he arrived at his opinion, and he did it in as much detail as possible given the nature of his "inquiry."

Accordingly, we reject Oddi's assertion that he was entitled to an in limine hearing before the court could reject his expert's testimony. Our conclusion does not, however, end our inquiry. We must still determine whether the district court abused its discretion in ruling that Oddi's proffered expert testimony was inadmissible under Rule 702 and Daubert.19

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18. In Elcock, we also concluded that the trial court had erred in allowing
the plaintiff 's economist to testify at trial because his testimony was not
"accompanied by a sufficient factual foundation[to be] submitted to the jury." 2000 WL 1486489 at *17.

19. Two small matters also remain that pertain to this portion of Oddi's argument. First, Oddi argues that the district court failed to rule on his

B. The District Court's Exercise of Discretion.

Because "the evidentiary requirement of reliability is lower than the merits standard of correctness," the standard for determining scientific reliability"is not that high." Paoli II, at 744-45. The test is not "[w]hether the . . . expert might have done a better job." Kannankeril, 128 F.3d at 809. Nonetheless, even though the Federal Rules of Evidence "embody a strong and undeniable preference for admitting any evidence which has the potential for assisting

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motion to strike Grumman's reply brief filed after Oddi filed his response to the original summary judgment motions. As noted earlier, Grumman's initial summary judgment motion did not raise a Daubert challenge to Oddi's experts' testimony. It was only after Oddi responded to Ford's and Grumman's summary judgment motions that Grumman asserted a Daubert challenge via a reply brief. Oddi thenfiled a motion to strike, presumably asserting that the reply brief was filed without leave of court.
However, the district court did not rule on Oddi's motion to strike, and Oddi claims that he was prejudiced by the district court's failure to strike Grumman's reply brief. The prejudice lies in the fact that, according to Oddi, Ford's Daubert challenge was only to Noettl's bumper testimony and not the flooring testimony, while Grumman's was to both the bumper and flooring. Thus, Oddi argues that he was not able to respond the newly asserted challenged to Noettl'sflooring testimony. However, Oddi would be hard pressed to demonstrate prejudice because Ford's summary judgment motion mounted a Daubert challenge to Noettl's testimony with regard to the bumper claim as well as the flooring claim. Thus, even if it is assumed for argument's sake that the district court improperly failed to strike Grumman's reply brief, Oddi suffered no harm because Noettl's testimony as to both the bumper and the floor was attacked at the outset by Ford. Furthermore, Oddi does not cite any authority for his contention that it was improper for Grumman to file a reply brief or any authority supporting his contention that Grumman's reply brief should have been stricken. Consequently, Oddi's prejudice argument is without merit.

Second, Oddi argues that the district court did not comply with its local court rule 7.1F which requires oral argument for dispositive motions "unless expressly precluded by the court." However, this argument is also without merit. As the district court expressly noted, it is the custom and practice of the United States District Court for the Western District of Pennsylvania to preclude oral argument on dispositive motions. The ability of the district courts to preclude argument is expressly given to the court by the local rule.

the trier of fact," Kannankeril, at 806, we do not believe that the district court abused its discretion in rejecting Oddi's expert testimony here.

As we noted earlier, the factors to be considered in a Daubert admissibility inquiry include:

> (1) whether a method consists of a testable hypothesis; (2) whether the method has been subject to peer review; (3) the known or potential rate of error; (4) the existence and maintenance of standards controlling the technique's operation; (5) whether the method is generally accepted; (6) the relationship of the technique to methods which have been established to be reliable; (7) the qualifications of the expert witness testifying based on the methodology; and (8) the non-judicial uses to which the method has been put.

Paoli II, at 742 n. 8. While Noettl clearly meets Daubert's qualifications requirement, his expert opinion does not satisfy any of the other considerations that determine admissibility.

Noettl posited two hypotheses. His first hypothesis was that the front bumper's design should have included either bracketry or a brace system that would have increased the bumper's rigidity, prevented the truck from ramping, and deflected the vehicle back onto the roadway after impact with the guard rail. His second hypothesis was that thicker and/or ribbed metal on the flooring of the cab would have retained the integrity of the cab. However, Noettl quite candidly testified that he never tested either hypothesis. Consequently, he has not satisfied the first of the Daubert factors. The Supreme Court has explicitly instructed, "[o]rdinarily, a key question to be answered in determining whether a theory or technique is scientific knowledge that will assist the trier of fact will be whether it can be (and has been) tested." Daubert, at 593 (emphasis added).

Although Daubert does not require a paradigm of scientific inquiry as a condition precedent to admitting expert testimony, it does require more than the haphazard, intuitive inquiry that Noettl engaged in. Given Noettl's responses, Oddi could not establish the existence of Noettl's

methodology and research let alone the adequacy of it.20 This is illustrated by Noettl's attempt to explain how he arrived at his conclusion. Noettl testified that he had "studied" bread trucks but was not able to state if they were the same kind of truck that Oddi was driving or even if they were produced by the same manufacturer.

> Q: What type of vehicles [did you examine]?
>
> A: Bread trucks.
>
> Q: Whose bread trucks? Who made them?
>
> A: They were in front of a grocery store and I walked up and looked at them. I didn't record anything off of them. I seen them [i. e., bracketry or wedge supports] on them [i. e., front bumpers].
>
> **********
>
> Q: You didn't make a note of what the bread truck was so you could go back and say, "Here's the design I'm proposing and somebody is already using this."
>
> A: I said that in my mind, and I had groceries and I didn't have a camera and nothing else.
>
> Q: You don't remember the name of the bread company?
>
> A: No, I don't. It might come to me. I can't tell you, no.
>
> **********
>
> Q: You don't know whether or not those trucks would have sustained a bending of the bumper the same as this truck because we don't know what the forces are, right?
>
> A: I would say that they have a better chance, but I can't tell you more than that, no. That's correct.
>
> **********

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20. Methodology is defined as "body of methods, rules, and postulates employed by a discipline: a particular procedure of set of procedures." WEBSTER'S NINTH NEW COLLEGIATE DICTIONARY 747 (1990).

Q: But, what you've seen, you don't know whether or not that would have changed the scenario in this accident one way or the other?

A: I haven't evaluated that.

App. at 53.

Moreover, not only did Noettl fail to test either hypothesis, he never even considered the design of the guardrail or the possibility that the damage to Oddi's truck was a factor of the design of the guardrail, not the design of the truck.

Q: What if the guardrail was deformed and bent back by the force of the impact so it was bent to the point where it was lower than the bumper? Could a ride-up occur then?

A: It if was bent back further than the bumper's height.

Q: If it was bent back and, therefore, it was lower than the height of the bumper, could it ride up?

A: It's possible. I haven't thought of it, and how long. I would have to look at that. If you, your tire is exposed to ramping --

Q: If you have the bumper and the guardrail here and the guardrail bends down to a point lower than the bumper, the tire could ride up on it, isn't that correct?

A: That is a possibility, yes.

App. at 46.

Noettl also conceded that strengthening the bumper as he proposed could result in even greater injury because the increased rigidity could transmit more force to the driver of the truck than the defendants' design.

Q: To get back to my question, would the energy-- if you had a rigid bumper, on impact, the energy of the impact and the force of the impact would be transferred to the occupants, right?

A: Some of it would, yes.

Q: More of it would than if you had a bumper that had give to it?

A: Right.

App. at 40-14. Noettl did not offer any testimony as to the point on the continuum between absolute rigidity and the rigidity of defendants' design that would achieve greater protection than the bumper on Oddi's truck yet afford a practical alternative.

Noettl's explanation of the purported defect in thefloor of the truck was undermined by the same laws of physics that undermined his testimony that the bumper design was defective.

Q: What was wrong with [the floor]?

A: It wasn't strong enough to prevent intrusion in this type of an accident into the occupant compartment, exposing the driver to the dangers of that intrusion.

Q: What should have been done?

A: The metal could have been made thicker. It could have been ribbed.

3/31/99 Op. at 12-3. However's Noettl's own logic clearly suggests that any such alteration may well have been less able to absorb impact itself, and therefore it may have simply transferred even more force to the occupant than the defendants' design did. Although it may well be that there is an ideal thickness that would have been able to absorb far greater force than the defendants' design yet still protect the truck's occupant, Noettl was not able to identify that point. He was asked "How thick should it have been?" He responded: "Well, the way I would do that is to thicken the metal and rib it and then do a test to see, if under these types of foreseeable accidents, it would really retain the integrity of the occupant compartment." 3/31/99 Op. at 12-13. However, he never did that. Id.

Not only did Noettl not test his hypotheses, he did not even attempt to calculate the force that was inflicted on the truck by the guardrail at impact; he did not calculate the force of the bridge abutment on the truck; and he did not measure the strength of the guardrail or determine how

much force the guardrail could sustain. He did not know how much was required to bend the bumper or penetrate the floor, or how much force the bumper or floor could withstand. His hypothesis about adding a "wedge" or bracket to bumper was likewise without support as he did not determine the tensile strength or gauge of whatever metal should be incorporated into his alternative design. Accordingly, there was no way of knowing if his suggested alternative would better protect the cab's occupant, or if the suggested modifications were practical.

Essentially, Noettl's expert opinion that the front bumper would have sustained the impact with the guard rail and not ramped had it been strengthened with either bracketry or wedge supports and that the flooring in the occupant compartment should have been thicker or ribbed is based on nothing more than his training and years of experience as an engineer. Although there may be some circumstances where one's training and experience will provide an adequate foundation to admit an opinion and furnish the necessary reliability to allow a jury to consider it, this is not such a case. See e.g., Lauria, at 599 (former Conrail foreman's many years of experience with railroad track equipment, maintenance and safety equipment, qualified him as an expert to testify about Amtrak's responsibility to inspect and maintain railroad track in a safe condition). Noettl's ipse dixit does not withstand Daubert's scrutiny. An "expert's opinion must be based on the methods and procedures of science rather than on subjective belief or unsupported speculation." Paoli II, at 742 (citations and internal quotations omitted).

Since Noettl conducted no tests and failed to attempt to calculate any of the forces on Oddi or the truck during this accident, he used little, if any, methodology beyond his own intuition. There is nothing here to submit to peer review, and it is impossible to ascertain any rate of error for Noettl's assumptions about the forces that caused Oddi's horrific injuries. Similarly, no standards control his analysis, and no "gatekeeper" can assess the relationship of Noettl's method to other methods known to be reliable and the non-judicial uses to which it has been put. Clearly, the district court did not abuse its discretion in excluding Noettle's proffered expert opinion testimony.

We also note an obvious gap in Oddi's argument. As recited earlier, Oddi retained two experts, Noettl and Kazarian. The district court also found that Kazarian's expert opinion testimony did not satisfy Daubert . 3/31/99 Dist. Ct. Op. at 15-16. Kazarian's expert opinion went to the "enhanced injuries" element of the crashworthiness claims. Unless Oddi can establish that the defendants' design and/or manufacture enhanced injuries he would not have otherwise sustained, or caused him to sustain injuries that he would not have sustained otherwise, there can be no recovery under a theory of crashworthiness. Carrasquilla, 963 F. Supp. at 458. Consequently, even assuming arguendo that Oddi convinced us that Noettl's testimony was improperly excluded, his failure to address the admissibility of Kazarian's testimony means that Oddi has no admissible evidence to demonstrate the "enhanced injuries" elements of a crashworthiness claim. 21

C. The District Court Properly Granted Summary Judgment on the Negligent Failure to Test Claim.

Finally, Oddi argues that the district court erred by granting summary judgment to Ford and Grumman on his negligent failure to test claim. As noted, Oddi claims that a manufacturer has an affirmative duty to test its product to see if it is defective. He then contends that "it is within the comprehension of lay jurors to understand that if the Defendants had tested this truck, they would have been aware that, in an accident, its design would defeat the purpose of a guardrail." Oddi's Br. at 27. Accordingly, Oddi argues that even if his expert testimony was properly excluded, his negligence claim still survives because he does not need expert testimony to establish that claim.

As a general principle, "[e]xpert evidence is not necessary . . . if all the primary facts can be accurately and intelligibly

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21. Moreover, Kazarian's testimony would not have been as helpful as Oddi believes even if it had been admitted. Kazarian conceded that he had no opinion on what injuries Oddi would have suffered had there been no compromise to the floor of the occupant compartment and had no opinion on what injuries Oddi would have sustained if the truck had not ramped the guard rail.

described to the jury, and if they, as [persons] of common understanding, are as capable of comprehending the primary facts and of drawing correct conclusions from them as are witnesses possessed of special or peculiar training of the subject under investigation." Padillas , at 415-16 (citation omitted); see also Cipriani v. Sun Pipe Line Co., 574 A.2d 706, 710 (Pa. Super. 1990)("However, expert testimony is not required when the matter under consideration is simple and lack of ordinary care is obvious and within the range of comprehension of the average juror.")(citations omitted). Although expert evidence is generally required in a products liability case where a defect is alleged, we have never foreclosed the possibility that a defective condition may be established through non-expert evidence. In Padillas we opined that since the case was at the summary judgment stage, it was "premature to rule out that testimony and pictures may enable the jury to clearly see the construction of the machine and the manner of its use, rendering expert testimony unnecessary." Padillas, at 416. Consequently, we held that it was entirely possible that Padillas' non-expert testimony may be "sufficient to submit his claim of defect to the jury." Id.

The truck Oddi was driving is not at all like the chicken cutter with exposed blades in Padillas. A whirling cutting blade without a proper guard is obviously dangerous. It could reasonably be regarded by a lay juror as a design defect. In addition, in Padillas, plaintiff offered nonexpert testimony including, but not limited to, reports from defendant's own employees that referred to "Safety Problems," and a report from the defendant's engineering manager "addressing problems with the machine . .. including `safety concerns [in that the blades were] not well grounded.' " 186 F.3d at 415.

We do not believe that a juror could look at the front bumper and the flooring of the cab of the truck Oddi was driving and reasonably conclude, not only that its design was defective, but also that testing would have disclosed the defect and that it could have been remedied. Such conclusions are within the peculiar competence of experts. Inasmuch as Oddi's "defect expert" does not survive Daubert scrutiny, the district court properly granted

summary judgment to Ford and Grumman on Oddi's negligent failure to test claim.22

VI. CONCLUSION.

We are not unsympathetic to Oddi. He suffered horrific and catastrophic injuries while driving the truck that had been designed and/or manufactured by the defendants. That does not, of course, establish that either defendant is necessarily liable for any of those injuries or that Oddi's proffered proof was sufficient to prove liability on their part. Nor does our holding suggest that every plaintiff must engage in such sophisticated and refined testing (including crash-testing) as to preclude a successful suit for damages for all but the wealthiest of plaintiffs or a group of plaintiffs sufficiently large to allow the economies and practicalities of class certification. The inquiry required under Daubert ought not to become an impenetrable barrier for plaintiffs with limited resources or restricted circumstances. As noted above, the Supreme Court reminds us that the "inquiry envisioned by Rule 702 is . . . a flexible one." Daubert, 509 U.S. at 595. It does not require the most elaborate or sophisticated tests or studies that can be imagined by opposing counsel. Nevertheless, here, the district court's inquiry established that Oddi's proffered expert testimony was not admissible under Fed. R. Evid. 702, and we conclude that the district court did not abuse its discretion in rejecting that evidence. Accordingly, we will affirm the district court.

A True Copy:
Teste:

Clerk of the United States Court of Appeals
for the Third Circuit

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22. Oddi claims that neither Ford nor Grumman moved for summary judgment on his negligent failure to test claim. Oddi's Br. at 27. That is incorrect. Ford's and Grumman's summary judgment motions were directed to all of Oddi's claims, including his negligence claims.